

AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (currently amended): A communication system comprising: in which three or more base nodes communicate through a plurality of communication media each formed of at least one relay node, wherein

said three or more base nodes include an assuming unit which handles a plurality of ports connected to said plurality of communication media among ports belonging to said base node as one virtual port to assume said plurality of communication media to be one node.

a first base node connected to one or more base nodes through a first network, said first base node further connected to said one or more base nodes through a second network other than said first network,

said first based node includes a frame analysis unit which handles a first port connected to said first network and a second port connected to said second network as one virtual port to assume said first and second network to be one node in broadcast transfer and multicast transfer of a data frame, wherein,

in normal operation of said communication system, said frame analysis unit processes transmission of said data frame from one port selected from among said ports assumed as said virtual port,

in response to a failure detection of said communication system, said frame analysis unit selects one of: a process of transmitting said data frame from one port selected from said ports assumed as said virtual port, and a process of transmitting said data frame from all of a plurality

of ports selected from said ports assumed as said virtual port, and performs the selected process according to a condition where said detected failure occurs, and

in a process of receiving said broadcast data frame or multicast data frame,

in normal operation of said communication system, said frame analysis unit performs a process of receiving said broadcast data frame or multicast data frame,

in response to failure detection of said communication system, said frame analysis unit selects one of: a process of receiving said data frame as it is, and a process of performing either reception or discarding of said received data frame based on said port which received said data frame and said base node which transmitted said data frame, and performs said selected processing according to a condition where said detected failure occurs.

2. (canceled).

3. (original): The communication system according to claim 1, wherein said assuming unit includes a forwarding data base which registers, for one destination, a plurality of pieces of forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination.

4. (original): The communication system according to claim 1, wherein said assuming unit includes a port mapping table which correlates at least one port of said base node with one virtual port, and a forwarding data base which registers at least one said virtual port in forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination.

5 - 39 (canceled).

40. (currently amended): A node as a base node comprising:

a frame analysis unit, the node ~~a base communicating with each other through a plurality of communication media each formed of at least one relay node in a communication system, comprising an assuming unit which handles a plurality of ports connected to said plurality of communication media among ports belonging to each of three or more nodes as a base as one virtual port to assume said plurality of communication media to be one node.~~

connected to one or more base nodes through a first network, said node further connected to said one or more base nodes through a second network other than said first network,

said frame analysis handles a first port connected to said first network and a second port connected to said second network as one virtual port to assume said first and second network to be one node in broadcast transfer and multicast transfer of a data frame, wherein

in normal operation of said communication system, said frame analysis unit processes transmission of said data frame from one port selected from among said ports assumed as said virtual port,

in response to a failure detection of said communication system, said frame analysis unit selects one of: a process of transmitting said data frame from one port selected from said ports assumed as said virtual port, and a process of transmitting said data frame from all of a plurality of ports selected from said ports assumed as said virtual port, and performs the selected process according to a condition where said detected failure occurs, and

in a process of receiving said broadcast data frame or multicast data frame,

in normal operation of said communication system, said frame analysis unit performs a process of receiving said broadcast data frame or multicast data frame,

in response to failure detection of said communication system, said frame analysis unit selects one of: a process of receiving said data frame as it is, and a process of performing either reception or discarding of said received data frame based on said port which received said data frame and said base node which transmitted said data frame, and performs said selected processing according to a condition where said detected failure occurs.

41. (original): The base node according to claim 40, wherein said assuming unit includes a forwarding data base which registers, for one destination, a plurality of pieces of forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination.

42. (original): The base node according to claim 40, wherein said assuming unit includes a port mapping table which correlates at least one port of said base node with one virtual port, and a forwarding data base which registers at least one said virtual port in forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination.

43 - 65 (canceled).

66. (currently amended): A communication control program executed on a base node as a base comprising:

a frame analysis unit, communicating with each other through a plurality of communication media each formed of at least one relay node in a communication system, which comprises

an assuming function of assuming said plurality of communication media to be one node by handling a plurality of ports connected to said plurality of communication media among ports belonging to each of three or more nodes as a base as one virtual port.

the base node connected to one or more base nodes through a first network, said node further connected to said one or more base nodes through a second network other than said first network,

said frame analysis handles a first port connected to said first network and a second port connected to said second network as one virtual port to assume said first and second network to be one node in broadcast transfer and multicast transfer of a data frame, wherein

in normal operation of said communication system, said frame analysis unit processes transmission of said data frame from one port selected from among said ports assumed as said virtual port,

in response to a failure detection of said communication system, said frame analysis unit selects one of: a process of transmitting said data frame from one port selected from said ports assumed as said virtual port, and a process of transmitting said data frame from all of a plurality of ports selected from said ports assumed as said virtual port, and performs the selected process according to a condition where said detected failure occurs, and

in a process of receiving said broadcast data frame or multicast data frame,

in normal operation of said communication system, said frame analysis unit performs a process of receiving said broadcast data frame or multicast data frame,

in response to failure detection of said communication system, said frame analysis unit selects one of: a process of receiving said data frame as it is, and a process of performing either reception or discarding of said received data frame based on said port which received said data frame and said base node which transmitted said data frame, and performs said selected processing according to a condition where said detected failure occurs.

67. (original): The communication control program according to claim 66, which comprises the function of registering, for one destination, a plurality of pieces of forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination in a forwarding data base.

68. (original): The communication control program according to claim 66, which comprises the function of correlating at least one port of said base node with one virtual port in a port mapping table, and registering at least one said virtual port in forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination in a forwarding data base.

69. (currently amended): The communication control program according to claim 66,
~~which comprises~~further comprises a~~the~~ function of, ~~when transmitting a data frame to said communication medium~~a network having a different frame format, transmitting said data frame with header information of the frame format of ~~said communication medium~~the network which
has been added and when receiving a data frame from said ~~communication medium~~network,

receiving said data frame with the header information of the frame format of ~~said communication medium~~the network removed.

70. (original): The communication control program according to any one of claim 66 to claim 69, which comprises the function of transmitting and receiving a keep alive frame to/from each other to obtain a communication state of the communication system.

71. (currently amended): The communication control program according to claim 70, wherein said keep alive frame is broadcast by ~~said one or more relay node~~nodes forming said ~~plurality of communication media~~first and second networks with a destination address recognized as unknown by said ~~relay node~~one or more relay nodes forming said ~~plurality of communication media~~recited first and second networks.

72 - 88 (canceled).

89. (original): A computer including a network interface card having the function of ~~communicating with each other through a plurality of communication media each formed of at least one relay node~~one or more base nodes through a first network in a communication system, wherein

~~said network interface card includes an assuming unit which handles a plurality of ports connected to said plurality of communication media among ports belonging to said network interface card three or more nodes as a base as one virtual port to assume said plurality of~~

communication media to be one node, said network interface card is further connected to one or more base nodes through a second network other than said first network,

said network interface card includes a frame analysis unit which handles a first port connected to said first network and a second port connected to said second network as one virtual port to assume said first and second network to be one node in broadcast transfer and multicast transfer of a data frame, wherein

in normal operation of said communication system, said frame analysis unit processes transmission of said data frame from one port selected from among said ports assumed as said virtual port,

in response to a failure detection of said communication system, said frame analysis unit selects one of: a process of transmitting said data frame from one port selected from said ports assumed as said virtual port, and a process of transmitting said data frame from all of a plurality of ports selected from said ports assumed as said virtual port, and performs the selected process according to a condition where said detected failure occurs, and

in a process of receiving said broadcast data frame or multicast data frame,

in normal operation of said communication system, said frame analysis unit performs a process of receiving said broadcast data frame or multicast data frame,

in response to failure detection of said communication system, said frame analysis unit selects one of: a process of receiving said data frame as it is, and a process of performing either reception or discarding of said received data frame based on said port which received said data frame and said base node which transmitted said data frame, and performs said selected processing according to a condition where said detected failure occurs.

90. (original): The computer according to claim 89, wherein said assuming unit of said network interface card includes a forwarding data base which registers, for one destination, a plurality of pieces of forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination.

91. (original): The computer according to claim 89, wherein said assuming unit of said network interface card includes a port mapping table which correlates at least one port with one virtual port, and a forwarding data base which registers at least one said virtual port in forwarding information for transferring a data frame transmitted from a certain transmission source to a predetermined destination

92 - 113 (canceled).